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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,543	12/13/2001	Arlen L. Roesner	10014774 -1	8101

7590 10/09/2003

HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
P.O. Box 272400  
Fort Collins, CO 80527-2400

EXAMINER

CHERVINSKY, BORIS LEO

ART UNIT	PAPER NUMBER
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2835

DATE MAILED: 10/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/017,543

Applicant(s)

ROESNER ET AL.

Examiner

Boris L. Chervinsky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

In view of the Board Of Appeals decision the finality of the last Office Action dated 10/24/02 has been withdrawn. The Board Of Appeals suggested in its decision to consider upon further prosecution of the instant application the rejection under §103(a), which follows.

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-9, 22-30 rejected under 35 U.S.C. 103(a) as being unpatentable over Green et al. in view of Brzezinski

Green discloses the assembly comprising a thermal interface disposed between a heat sink 42 and a heat generating electronic component 41, the thermal interface having a carrier 44 made of either metal foil or thermally conductive plastic sheet, the carrier having a layer of a phase-change material 45 on one side and a layer of a pliable thermally conductive material 46 on the other side (col. 3, line 65). Green discloses the claimed invention but having the pliable thermally conductive material being the phase change material therefore having that material on both sides of the carrier. Brzezinski discloses the thermal interface arrangement having the phase change material 58 (col. 6, lines 33-35) on one side of the carrier 56 and thermal grease on the opposite side of the carrier (col. 7, lines 12-16) It would have been obvious at the time the invention was

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made to a person having ordinary skill in the art to apply phase change material on only one side of the carrier as disclosed by Green and have just any other pliable thermally conductive material, such as thermal grease, on the other side as disclosed by Brzezinski because:

- a. the pliable thermally conductive materials such as grease are well known and widely used as indicated by Green, col. 2, lines 27-33;
  - b. to apply the thermal grease on one side of the carrier can be more economical since thermal grease is readily available and inexpensive;
  - c. the thermal grease layer can be applied to the carrier in any desirable thickness;
  - d. the thermal grease layer can be field applied on the carrier and does not need to be prefabricated as it may be the case with phase change material,
- therefore such modification to the thermal interface disclosed by Green would be a justified option.

Regarding claims 5 and 26, Green discloses the claimed invention except for specific materials such as copper, gold, silver and aluminum. Copper, gold, silver and aluminum are well known as being excellent heat conductors and these materials are widely used in industry as heat spreaders. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have carrier made of these materials, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

3. Claims 10, 11, 13-15, 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Green et al. in view of Brzezinski and further in view of Tzeng et al. Green discloses the claimed invention except a removable protective cover. Tzeng et al. disclose the thermal interface having a pressure sensitive layer 13 covered by a removable protective cover. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use removable protective layer as disclosed by Tzeng in the structure disclosed by Green as to protect the pliable thermal compound layer prior to installation.

4. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Green et al. in view of Brzezinski and further in view of Tzeng et al. Green discloses the claimed invention except for specific materials such as copper, gold, silver and aluminum. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have carrier made of these materials, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Green et al. in view of Brzezinski and further in view of Tzeng, as applied to claim 10, and further in view of Lee et al. Green discloses the claimed invention except a removable protective cap. Lee discloses the removable protective cap 56 to protect thermal grease 40 prior to installation. It would have been obvious to one having ordinary skill in the art at the time the invention

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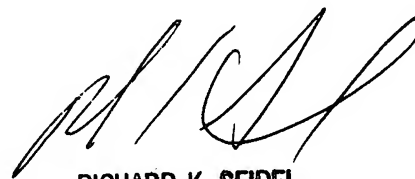
was made to have the protective removable cap as disclosed by Lee et al. in the device disclosed by Green et al. in order to protect pliable surface or thermal grease.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Boris L. Chervinsky whose telephone number is 703-308-5429. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren E. Schuberg can be reached on 703-308-4815. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-5115.

**BORIS CHERVINSKY**  
**PRIMARY EXAMINER**



**RICHARD K. SEIDEL**  
**DIRECTOR**  
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